CLAIMS

1. A method of scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising:

determining a signal to noise ratio for allocated sub-carriers in an OFDM communication link; and

adjusting a number of allocated sub-carriers based, at least in part, on the signal to noise ratio.

2. The method of Claim 1, wherein determining the signal to noise ratio comprises:

determining a received power in a sub-carrier frequency band;

determining a noise estimate in the sub-carrier frequency band during at least one time period in which a sub-carrier corresponding to the sub-carrier frequency band is unassigned; and

determining a ratio of the received power in the sub-carrier frequency band to the noise estimate.

3. The method of Claim 2, wherein the noise estimate is determined during at least one time period in which the sub-carrier is locally unassigned.

4. The method of Claim 2, wherein the noise estimate is determined during at least one time period in which the sub-carrier is system-wide unassigned.

5. The method of Claim 1, wherein the signal to noise ratio comprises a signal to noise floor ratio.

6. The method of Claim 1, wherein the signal to noise ratio comprises a signal to interference plus noise ratio.

7. The method of Claim 1, wherein the signal to noise ratio comprises an average signal to noise ratio over all currently allocated sub-carrier frequency bands.

8. The method of Claim 1, further comprising:

determining a total received power;

determining a number of currently allocated sub-carriers; and

wherein adjusting the number of allocated sub-carriers is additionally based, at least in part, on the total received power and the number of currently allocated sub-carriers.

9.   The method of Claim 1, further comprising:

determining a total received power;

determining whether the total received power is less than or equal to a minimum total received power;

determining a number of currently allocated sub-carriers;

determining whether the number of currently allocated sub-carriers is less than a maximum number of sub-carriers in a link;

determining whether the signal to noise ratio is greater than a predetermined maximum signal to noise ratio; and

incrementing the number of currently allocated sub-carriers if the total received power is less than the minimum total received power, the number of currently allocated sub-carriers is less than the maximum number of sub-carriers in the link, and the signal to noise ratio is greater than the predetermined maximum signal to noise ratio.

10.   The method of Claim 1, further comprising:

determining a total received power;

determining whether the total received power is greater than or equal to a maximum total received power;

determining a number of currently allocated sub-carriers;

determining whether the number of currently allocated sub-carriers is greater than one;

determining whether the signal to noise ratio is less than a predetermined minimum signal to noise ratio; and

decrementing the number of currently allocated sub-carriers if the total received power is greater than the maximum total received power, the number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than the predetermined minimum signal to noise ratio.

11.   A method of scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising:

receiving at a base station a wirelessly transmitted OFDM signal from a terminal;

determining a signal to noise level for allocated sub-carriers in the OFDM signal;

determining if the signal to noise ratio is within a predetermined range; and

scheduling a number of sub-carriers for a communication link from the terminal to the base station based, at least in part, on whether the signal to noise is within the predetermined range.

12.   The method of Claim 11, further comprising:

determining a total received power;

determining a number of currently allocated sub-carriers; and

wherein scheduling the number of sub-carriers is additionally based, at least in part, on the total received power and the number of currently allocated sub-carriers.

13.   The method of Claim 12, wherein scheduling the number of sub-carriers comprises incrementing the number of currently allocated sub-carriers if the total received power is less than a minimum total received power, the number of currently allocated sub-carriers is less than a maximum number of sub-carriers, and the signal to noise ratio is greater than a predetermined maximum signal to noise ratio.

14.   The method of Claim 12, wherein scheduling the number of sub-carriers comprises decrementing the number of currently allocated sub-carriers if the total received power is greater than a maximum total received power, the number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than a predetermined minimum signal to noise ratio.

15.   An apparatus for scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the apparatus comprising:

a noise estimator configured to estimate a noise level in a sub-carrier frequency band;

a signal to noise ratio determination module coupled to the noise estimator and configured to determine a signal to noise ratio in the sub-carrier frequency band; and

a sub-carrier scheduler coupled to the signal to noise ratio determination module and configured to schedule a number of sub-carriers based, at least in part, on whether the signal to noise is within a predetermined range.

16.   The apparatus of Claim 15, wherein the signal to noise ratio determination module is further configured to determine a total received power, and wherein the sub-carrier scheduler is further configured to schedule the number of sub-carriers based, at least in part, on the total received power.

17.   The apparatus of Claim 15, wherein the signal to noise determination module is configured to determine a signal to noise floor ratio.

18.   The apparatus of Claim 15, wherein the signal to noise determination module is configured to determine a signal to noise plus interference ratio.

19.   The apparatus of Claim 15, wherein the signal to noise ratio determination module is further configured to determine a total received power, and wherein the sub-carrier scheduler increments a number of sub-carriers if a total received power is less than a minimum total received power, a number of currently allocated sub-carriers is less than a maximum number of sub-carriers, and the signal to noise ratio is greater than a predetermined maximum signal to noise ratio.

20.   The apparatus of Claim 15, wherein the signal to noise ratio determination module is further configured to determine a total received power, and wherein the sub-carrier scheduler decrements a number of allocated sub-carriers if a total received power is greater than a maximum total received power, a number of currently allocated sub-carriers is greater than one, and the signal to noise ratio is less than a predetermined minimum signal to noise ratio.

21.   A method of scheduling sub-carriers in an Orthogonal Frequency Division Multiplexing (OFDM) system, the method comprising:
receiving a sub-carrier allocation;

modifying a coding rate for data provided to an allocated sub-carrier based, at least in part, on a number of sub-carriers in the sub-carrier allocation; and

generating an OFDM signal using the number of sub-carriers in the sub-carrier allocation.

22. The method of Claim 21, wherein modifying the coding rate comprises decreasing the coding rate from a current coding rate if the number of allocated sub-carriers is greater than a previous number of allocated sub-carriers.

23. The method of Claim 21, wherein modifying the coding rate comprises increasing the coding rate from a current coding rate if the number of allocated sub-carriers is less than a previous number of allocated sub-carriers.